Networkmaine
Education • Research • Public Service

Joebox M-series

User's Manual

Networkmaine Joebox Manual

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Contact Information:

Networkmaine

5752 Neville Hall
Computing Center
Orono, ME 04469-5752

Telephone: +1 (207) 561-3587
Fax: 561-3531

http://www.networkmaine.net/

Networkmaine is a Unit of the University of Maine System

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Introduction to the Joebox

The Joebox M-series is a Linux-based network security and IP routing appliance developed by Networkmaine and MECnet, the technology arm of the Merrimack Education Center. The Joebox provides high throughput, full IP routing, and support for MSLN distributed DHCP and DNS services, as well as emerging technologies like IP multicast and IPv6.

Local management of the Joebox is provided through a web-based control panel for administration.

Logging in to the Joebox Interface

To log in to the Joebox Control Panel (JBCP), complete the following steps:

1. Open your web browser
2. In the address bar, type in your Joebox's IP address using the following address format:

   https://*YOURJOEBOXIP*:10000

3. The following login page should display:

4. Enter your Username and Password, and click on the "*Login*" button

Once you have successfully logged in, you will be presented with three main sections: *Network, Services, and System*. Through accessing these sections, you will be able to perform the tasks described in this document.

The Boot Process

When the Joebox is booted, the system reads the software and configuration that is stored in its flash memory.

Therefore, **if you have made any changes to the system without saving the configuration, those changes will not be preserved upon reboot**.

Saving Configurations

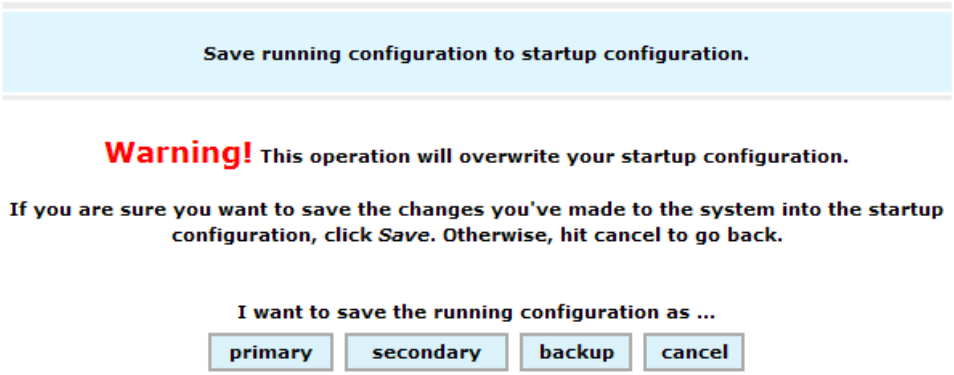
The Joebox allows two configurations to be stored simultaneously. This makes it possible for you to make changes to one configuration and test its functionality while still storing a second configuration that can be reverted back to in the event that the second configuration does not work as anticipated.

The two available configurations are identified as the *primary* configuration and the *secondary* configuration.

After you have made changes to a configuration, click on the "*Save*" link in the upper right-hand corner of the window.

The *Save Configuration* page allows you to save the currently running configuration as either primary or secondary.

Click on either the "*primary*" or "*secondary*" button.


Save running configuration to startup configuration.
Warning! This operation will overwrite your startup configuration.
If you are sure you want to save the changes you've made to the system into the startup configuration, click Save. Otherwise, hit cancel to go back.
I want to save the running configuration as ...
primary
secondary
backup
cancel

Also on this page, you can make a backup of a configuration. It will be the responsibility of each site to make configuration backups for their own Joebox. Click on the "*backup*" button to make a backup of the current configuration.

Choosing Which Configuration to Boot

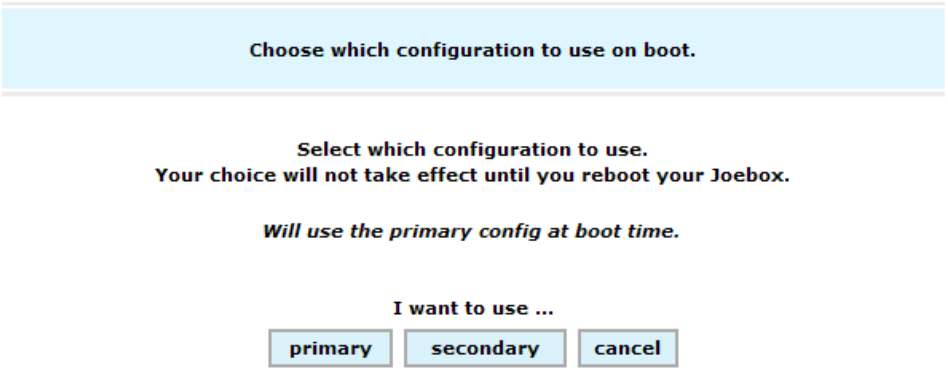
If you do not specify which configuration to use on reboot, the system will by default reboot with the last used configuration.

To select a configuration, click on the "*Boot Cfg.*" link in the upper right-hand corner of the window.

The *Change Boot Configuration* page allows you to specify whether the primary or secondary saved configuration will be used on the next reboot.

At this point, you are simply selecting which configuration to use. The choice made here will not take effect until the system is actually rebooted.

Click on either the "*primary*" or "*secondary*" button to select a configuration to use on reboot.


Choose which configuration to use on boot.
Select which configuration to use.
Your choice will not take effect until you reboot your Joebox.
Will use the primary config at boot time.
I want to use ...
primary
secondary
cancel

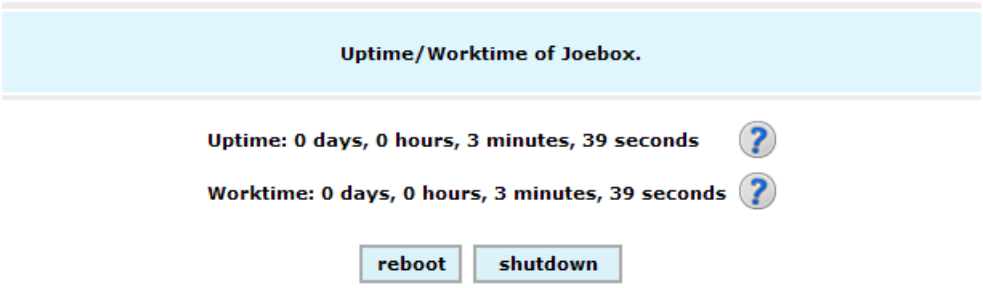
Rebooting the Joebox

Before rebooting your Joebox, make sure that you have saved the configuration and selected the configuration to use as indicated in the above sections of this document. After selecting a saved configuration to use, you can reboot the Joebox.

Click on the *System* link in the left-hand menu. The *System* front page will display, with a list of its various subsections.

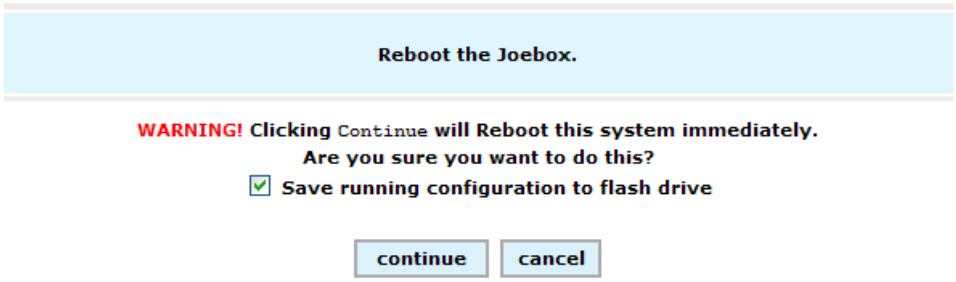
Click on the "*Uptime and Power*" button in the navigation menu or use the link in the body of the *System* page.

The *Uptime and Power* page displays the amount of time your Joebox has been powered on, and also provides the mechanism to reboot or shutdown the system.


Uptime/Worktime of Joebox.
Uptime: 0 days, 0 hours, 3 minutes, 39 seconds
Worktime: 0 days, 0 hours, 3 minutes, 39 seconds
reboot
shutdown

Click on the "*reboot*" button to reboot the system.

A secondary prompt will display. Make sure that the "*Save running configuration to flash drive*" checkbox is checked, and click on the "*continue*" button.


Reboot the Joebox.
WARNING! Clicking Continue will Reboot this system immediately.
Are you sure you want to do this?
Save running configuration to flash drive
continue
cancel

System Indicator Lights

You will notice colored lights next to the various items in the navigation menu on the left-hand side of the window.

A green light means that the service is enabled. A gray light means that the service is disabled.

A red or purple light means that the service is unable to be enabled, and there is a problem with the Joebox.

Updating Software

You will be notified periodically of upgrades to the Joebox software. Networkmaine will not perform the upgrades; it will be the responsibility of each site to perform the upgrade on their own Joebox.

To install an upgrade, click on the "*System*" link in the left-hand navigation menu, and then click on the "*Info/Tools*" button.

On the *Info/Tools* page, click on the "*Software/Update*" tab.

Select any packages to be updated, and then click on the "*update Joebox packages*" button at the bottom of the screen.

Shutting Down the System

If you need to shut down the Joebox for network maintenance, click on the "*System*" link in the left-hand navigation menu, click on the "*Uptime & Power*" button, and then click on the "*Shutdown*" button located on the *Uptime & Power* page.

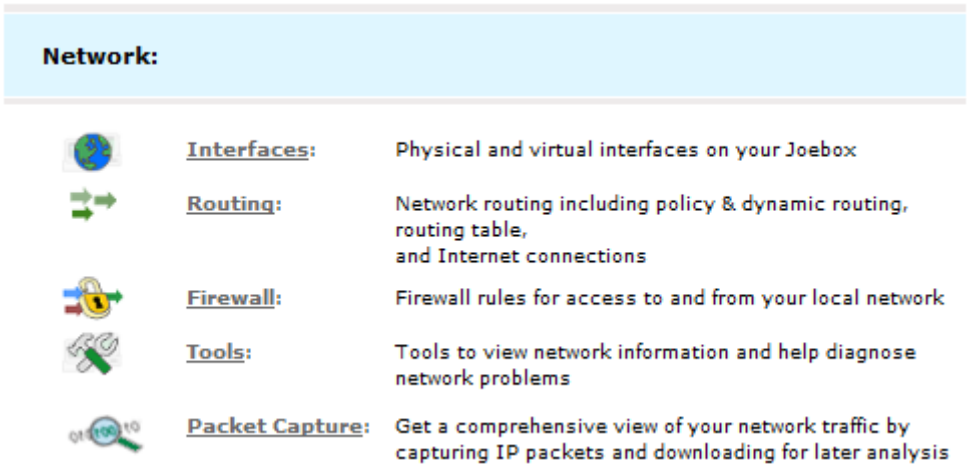
Logging out of the Joebox Interface

To log out of the Joebox interface, click on the "*Logout*" option in the left-hand navigation menu.

Network

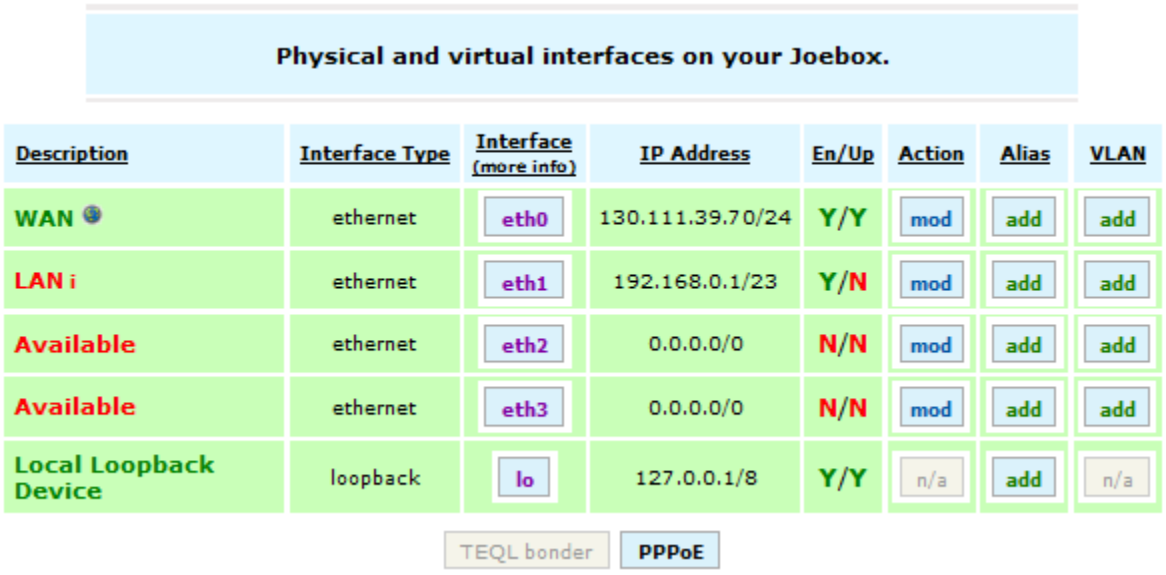
Once you have entered your credentials and logged in (see the "Logging in to the Joebox" section of this document), you will see a navigation menu on the left-hand side of the window.

Click on the *Network* link in the left-hand menu. You will be presented with the *Network* front page, which lists its various subsections. To access any section, either click on the link on this page or use the navigation buttons on the left-hand side of the window.


Network:
Interfaces:
Physical and virtual interfaces on your Joebox
Routing:
Network routing including policy & dynamic routing, routing table, and Internet connections
Firewall:
Firewall rules for access to and from your local network
Tools:
Tools to view network information and help diagnose network problems
Packet Capture:
Get a comprehensive view of your network traffic by capturing IP packets and downloading for later analysis

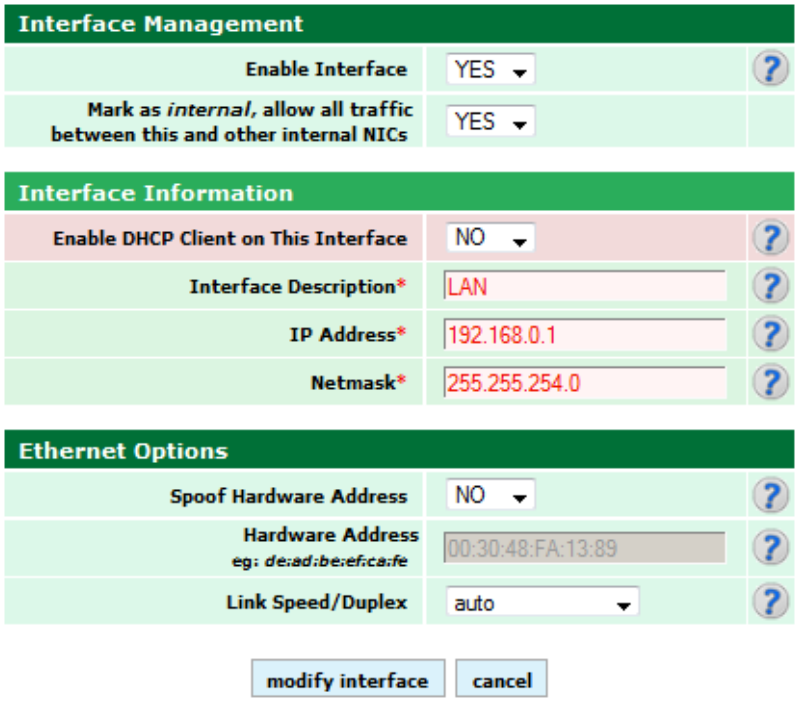
Interfaces

The first available item under the *Network* section is the *Interfaces* subsection. In this subsection, you can view, disable/enable, and modify the Joebox's interfaces.



To view more information on a particular interface, click on its corresponding button in the *Interface* column to display its *More Information* page. This page will identify the interface's hardware address, IP address and subnet mask, and error counters. To return to the *Interfaces* section, click on the "*return"* button at the bottom of the page.

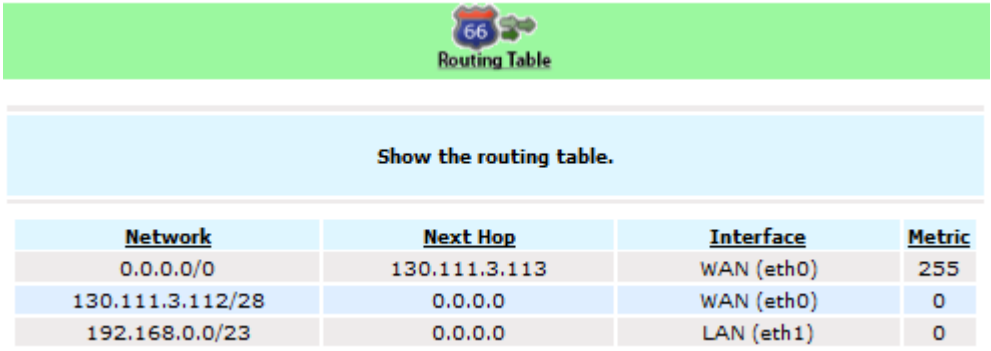
To modify settings associated with a particular interface, click on the "*mod"* button in its *Action* column. The *Interface Management* page that displays will allow you to enable the interface, mark it as internal, enable/disable DHCP, spoof a hardware address, and set the speed/duplex of the interface.



To add an alias or VLAN (Virtual Local Area Network), click on the interface's "*add*" button, then enter a description and IP information. Click on the "*add alias*" button to save your specifications.

Routing

The *Routing* subsection provides access to the routing table. Once you have entered the Routing area, you will need to click on the "*Routing Table"* tab to display a routing table listing any routes that the Joebox has discovered.



Network	Next Hop	Interface	Metric
0.0.0.0/0	130.111.3.113	WAN (eth0)	255
130.111.3.112/28	0.0.0.0	WAN (eth0)	0
192.168.0.0/23	0.0.0.0	LAN (eth1)	0

Firewall

The *Firewall* subsection will be described in detail in a separate section of this manual.

Tools

The *Tools* subsection provides various tools that allow you to view network information and that will help you to diagnose network problems. These tools include the *ARP Table*, *Connections*, *Bandwidth*, *DNS Dig*, *Ping*, and *Traceroute*.

To access any of these tools, click on the appropriate tab on the *Tools* page.

ARP Table

Clicking on the "*ARP Table*" tab will display a page with the ARP (Address Resolution Protocol) table. This table is semi-interactive, and displays all IP addresses and hardware addresses that the Joebox sees, as well as which interface it sees each address on.

You may delete an ARP entry by clicking on the "*del*" button.

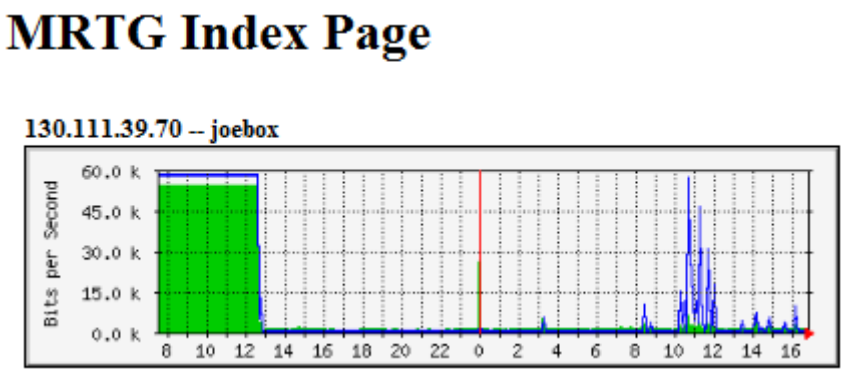
Connections

Clicking on the "*Connections*" tab will open a new window that displays a listing of all incoming and outgoing connections to your Joebox and the machines behind it. This is a dynamic page that refreshes every 30 seconds. For more information on a particular connection, click on an IP address in the list.

Use the "*Search"* textbox in the upper right-hand corner of the window to search for a particular connection in the list. Click on the "*execute*" button to perform the search.

Bandwidth

Clicking on the "*Bandwidth*" tab will open a new window that displays bandwidth graphing for each interface.



DNS Dig

Clicking on the "*DNS Dig*" tab allows you to retrieve DNS-related information about a specific host.

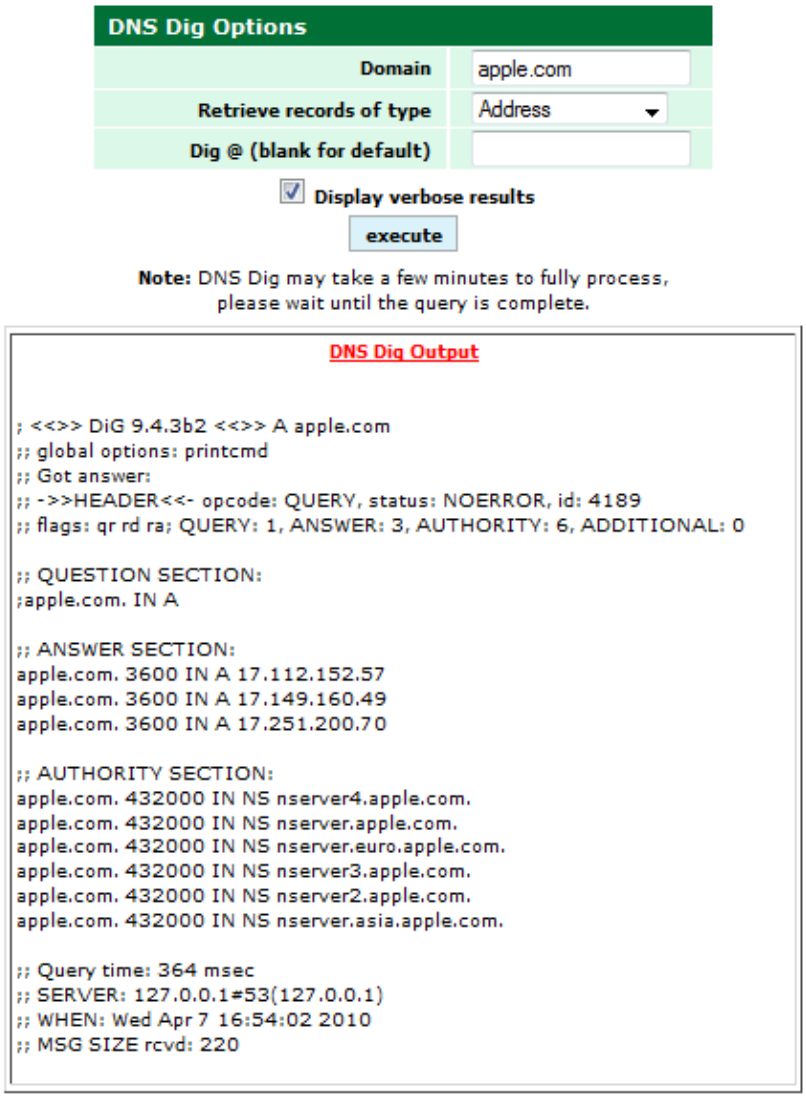
To use the Dig tool, enter the hostname or IP address of a location in the "*Domain*" textbox.

The options in the "*Retrieve Record of Type*" dropdown menu include:

- *Any Record*: Any resource record information on the domain
- *Address*: Translates hostname to IP address
- *Mail Exchange*: Mail servers used by this domain
- *Name Servers*: Name servers used by this domain
- *IP Pointer*: Translates IP address to hostname
- *Start of Authority*: Name server, host master, and serial number information
- *Text*: Miscellaneous information

If you enter an IP address rather than a hostname, you must choose *IP Pointer* from the "*Retrieve Record Type*" dropdown menu.

To run your query, click on the "*execute*" button. The requested data will display.


DNS Dig Options
Domain
apple.com
Retrieve records of type
Address
Dig @ (blank for default)
Display verbose results
execute
Note: DNS Dig may take a few minutes to fully process, please wait until the query is complete.
DNS Dig Output
; <<>> DiG 9.4.3b2 <<>> A apple.com
;; global options: printcmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 4189
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 6, ADDITIONAL: 0
;; QUESTION SECTION:
;apple.com. IN A
;; ANSWER SECTION:
apple.com. 3600 IN A 17.112.152.57
apple.com. 3600 IN A 17.149.160.49
apple.com. 3600 IN A 17.251.200.70
;; AUTHORITY SECTION:
apple.com. 432000 IN NS nserver4.apple.com.
apple.com. 432000 IN NS nserver.apple.com.
apple.com. 432000 IN NS nserver.euro.apple.com.
apple.com. 432000 IN NS nserver3.apple.com.
apple.com. 432000 IN NS nserver2.apple.com.
apple.com. 432000 IN NS nserver.asia.apple.com.
;; Query time: 364 msec
;; SERVER: 127.0.0.1#53(127.0.0.1)
;; WHEN: Wed Apr 7 16:54:02 2010
;; MSG SIZE rcvd: 220

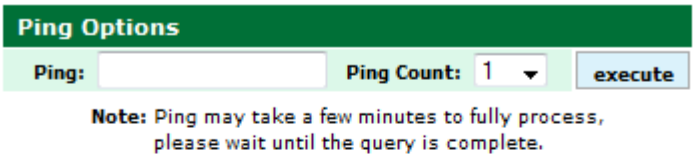
To reset the query, change any of the menu options or end your session.

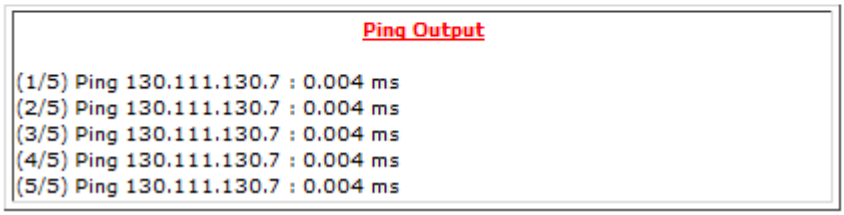
Ping

Clicking on the "*Ping*" tab provides a mechanism to determine if you can reach a host on the internet.

Enter an IP address in the "*Ping*" textbox, and select the desired number of pings (1, 5, or 10) using the "*Ping Count*" dropdown menu.

To begin the ping process, click on the "*execute*" button.

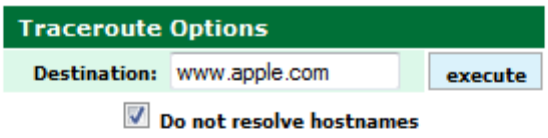


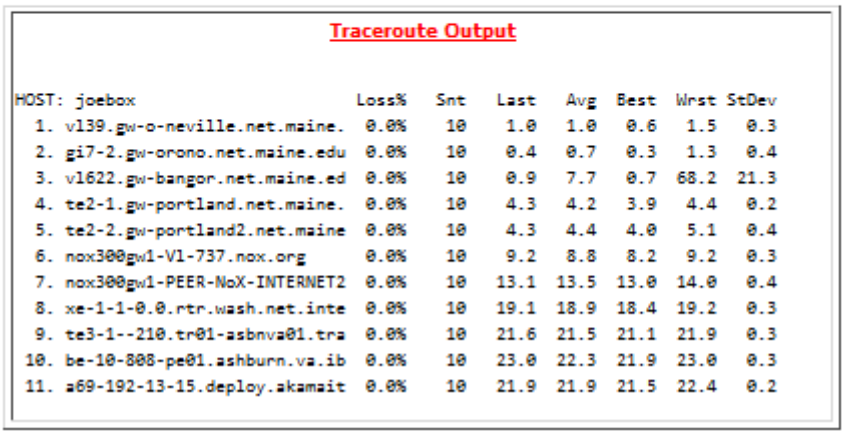


Traceroute

Clicking on the "*Traceroute*" tab provides a mechanism that allows you to track down the route your network takes to get to a given host on the Internet or other network.

Enter a URL or IP address into the "*Destination*" textbox and click on the "*execute*" button to begin the process.

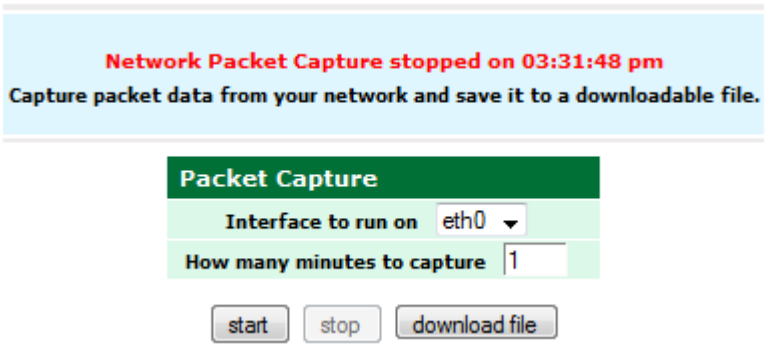




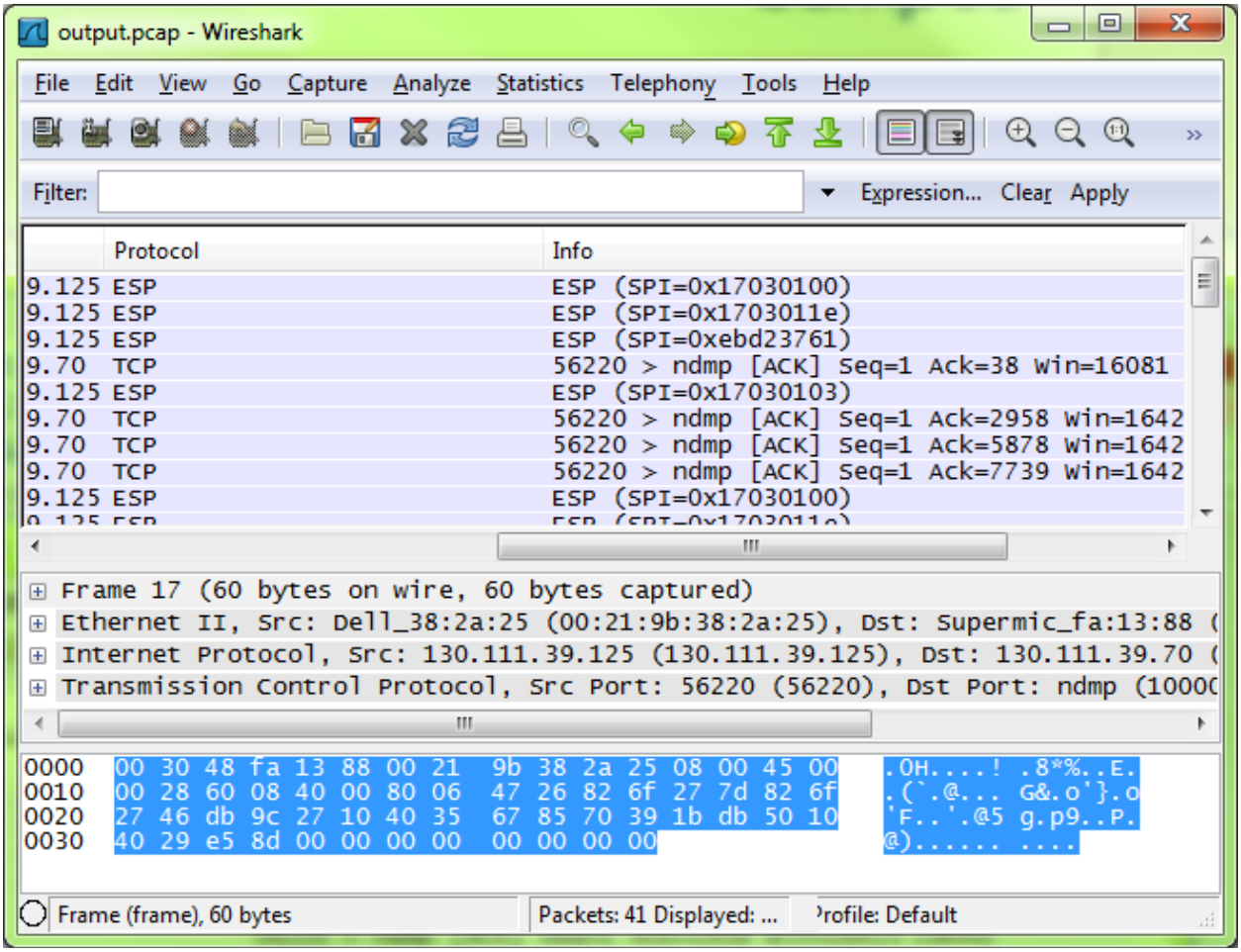
Packet Capture

The Packet Capture feature allows you to capture and analyze traffic that is going through your Joebox.

To capture a packet, select an interface to analyze and enter the desired duration of the capture session. Click on the "*start*" button to begin the session.



To save the data, click on the "*download file*" button when the capture process is finished. This will download a .pcap file that can be opened in Wireshark (http://www.wireshark.org) or another compatible program.


output.pcap - Wireshark
File Edit View Go Capture Analyze Statistics Telephony Tools Help
Filter:
Expression... Clear Apply
Protocol Info
9.125 ESP ESP (SPI=0x17030100)
9.125 ESP ESP (SPI=0x1703011e)
9.125 ESP ESP (SPI=0xebd23761)
9.70 TCP 56220 > ndmp [ACK] Seq=1 Ack=38 Win=16081
9.125 ESP ESP (SPI=0x17030103)
9.70 TCP 56220 > ndmp [ACK] Seq=1 Ack=2958 Win=1642
9.70 TCP 56220 > ndmp [ACK] Seq=1 Ack=5878 Win=1642
9.70 TCP 56220 > ndmp [ACK] Seq=1 Ack=7739 Win=1642
9.125 ESP ESP (SPI=0x17030100)
Frame 17 (60 bytes on wire, 60 bytes captured)
Ethernet II, Src: Dell_38:2a:25 (00:21:9b:38:2a:25), Dst: Supermic_fa:13:88
Internet Protocol, Src: 130.111.39.125 (130.111.39.125), Dst: 130.111.39.70
Transmission Control Protocol, Src Port: 56220 (56220), Dst Port: ndmp
0000 00 30 48 fa 13 88 00 21 9b 38 2a 25 08 00 45 00
0010 00 28 60 08 40 00 80 06 47 26 82 6f 27 7d 82 6f
0020 27 46 db 9c 27 10 40 35 67 85 70 39 1b db 50 10
0030 40 29 e5 8d 00 00 00 00 00 00 00 00
Frame (frame), 60 bytes
Packets: 41 Displayed: ...
Profile: Default

MECguard Filter

MECguard is the Joebox's content filtering proxy server. When enabled, all web traffic is passed through the filter and checked before being downloaded to the client that requested it.

Differences from the N2H2 Filter

If you are a previous user of the MSLN N2H2 service, there are a few important differences that should be noted. Unlike the N2H2 filter, MECguard checks both the **URL** and the **body** of the requested website. This means that MECguard is far more comprehensive than the old filter in that any keywords that you have blocked, if found anywhere in the page body, will cause the web page to be blocked. As an example, many websites have links to their Facebook profiles. If the keyword "facebook" is blocked, then none of those sites would be accessible. Instead, it would be better to block Facebook by domain.

Another difference from N2H2 is domain blocking. When blocking a domain, all sub-domains will also be blocked. If you were to block the domain *youtube.com*, then *ads.youtube.com* and *help.youtube.com* would also be blocked.

How MECguard Operates

It is necessary to explain how the filter rules are applied in order to fully understand their usage. MECguard checks filtering rules in a certain hierarchical order, stopping when a rule applies or allowing the page if it goes through all rules with no matches. The order it checks (from first to last) is:

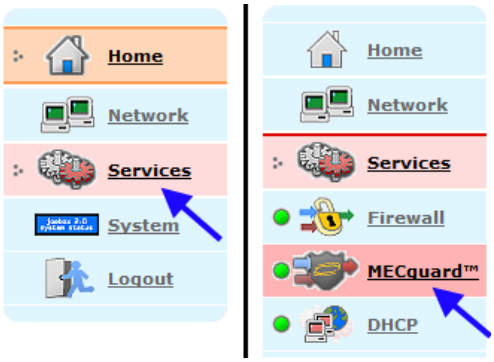
1. Group Allowed list
2. Group Blocked list
3. Group Keywords
4. Global Keywords
5. Top Level Domains
6. Category
7. Real-Time Filtering

What each of these checks mean, and where they are set, will be covered in detail later in this document.

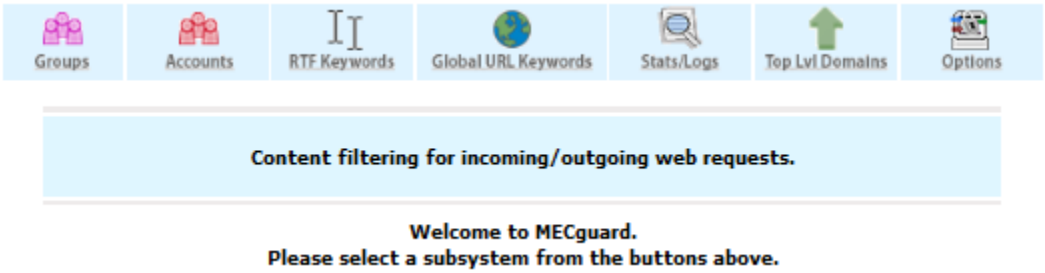
Accessing the MECguard Filter

Once you have entered your credentials and logged in (see the "Logging in to the Joebox" section of this document), you will see a navigation menu on the left-hand side of the window.

To access MECguard, first click on the "*Services"* button in the navigation menu to display its subsections, and then click on the "*MECguard*™" button. MECguard can also be accessed using the link in the body of the *Services* page.

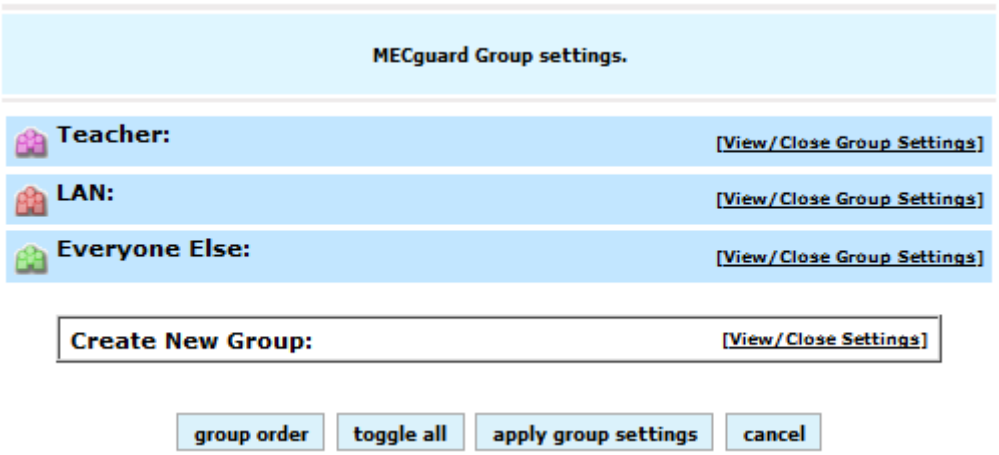


The MECguard home page provides access to various tools that allow you to change the content filter settings, add override accounts, view the filter logs, and edit miscellaneous options. These tools include *Groups*, *Accounts*, *RTF Keywords*, *Global URL Keywords*, *Stats/Logs*, *Top Level Domains*, and *Options*. To access any of these tools, click on the appropriate tab on the *MECguard* page.



Groups

Click on the "*Groups*" tab to open the *Groups* area.



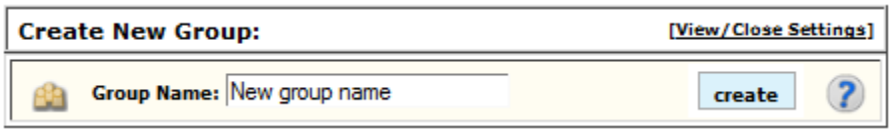
Groups are shared between the Firewall and MECguard content filter.

There are two predefined groups: *LAN* and *Everyone Else*. The *LAN* group applies to every host on your network. The *Everyone Else* group cannot be deleted, and applies to hosts that either are not members of another group or that cannot be classified by IP address.

New groups can also be created. In the example above, a *Teacher* group has already been created.

Creating a Group

To create a group, click on the "*Create New Group*" heading. Then type in a name for your group, and click on the "*create*" button.



Note that a group name cannot be changed after creation.

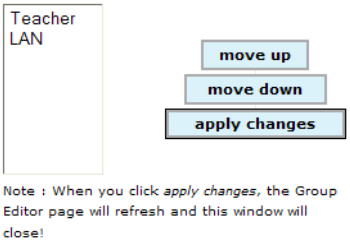
Changing the Group Order

When creating groups, be sure to list them in an order that reflects specific subsets of your network users first, followed by more general groups. The *Everyone Else* group should always appear last. For example, a group containing teachers should be listed before a *LAN* group, which in turn should be listed before the *Everyone Else* group.

To change the order of the groups, click on the "*group order*" button located below the list of groups.

In the new window that displays, select a group name and use the "*move up*" and "*move down*" buttons to move groups up or down in the list.

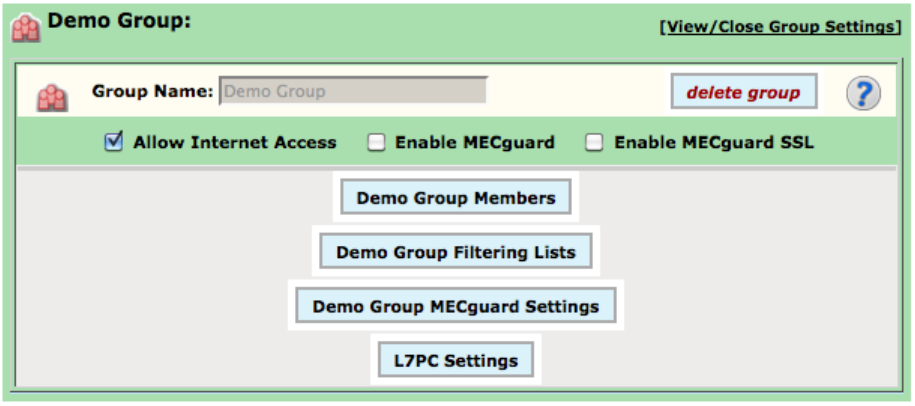
Click on the "*apply changes*" button.


Teacher
LAN
move up
move down
apply changes
Note : When you click apply changes, the Group Editor page will refresh and this window will close!

After modifying the order of groups, click on the "*apply group settings*" button at the bottom of the page, and then go to the "*Options"* tab at the top of the page and click on the "*Restart firewall to apply changes*" button located at the bottom of the *Options* page.

Editing a Group

To edit a group's settings, click on its title in the list of groups. This will display an area below the group name.



Unchecking "*Allow Internet Access*" will turn off access to the entire group.

Unchecking "*Enable MECguard*" will disable filtering for the group.

Currently the "*Enable MECguard SSL*" checkbox does not have any use and should remain unchecked to avoid undefined behavior.

Other settings that can be manipulated by clicking on the appropriate button include editing the group members, turning filtering and internet on/off, and altering the filtering settings. Each time a button is clicked, it either expands or collapses the analogous section.

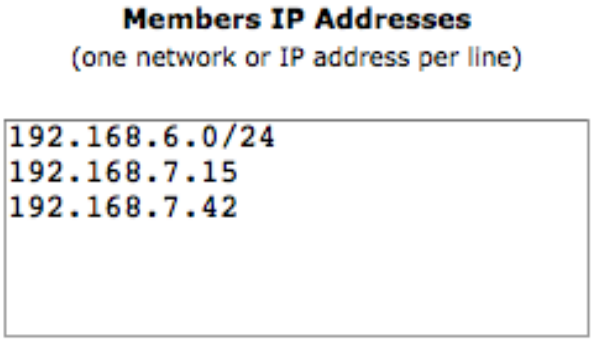
*** When you are ready for the changes to the group to take effect, make sure to do the following: ***

1. click on the "*apply group settings*" button at the bottom of the page
2. go to the "*Options*" tab at the top of the page and click on the "*Restart firewall to apply changes*" button at the bottom of the page

Adding/Removing Group Members

Click on a group's "*Members*" button to edit its member list.

To add a member to the group, type its network or IP address into the "*Members IP Addresses*" textbox, making sure that each address is on its own line. Group members can either be an individual IP address or an IP network written in CIDR notation[1]. Any host that is listed here, or belongs to a network listed here, will be subject to whatever settings are applied to the group.



In the example above, all of the hosts in the 192.168.6.0/24 network are members of the group, as well as 192.168.7.15 and 192.168.7.42. Note that the /24 indicated on the first line represents 254 host addresses. In this case, 192.168.6.2 to 192.168.6.254 are the addresses specified.

If you try to add members that are already part of another group, MECguard will alert you and remove them from this group once you click on the "*apply group settings*" button.

To remove a member from a group, select the member's IP address and use the "*delete*" key or "*backspace*" key to delete it.

After adding or removing a member, click on the "*apply group settings*" button at the bottom of the page, and then go to the "*Options"* tab at the top of the page and click on the "*Restart firewall to apply changes*" button located at the bottom of the *Options* page.

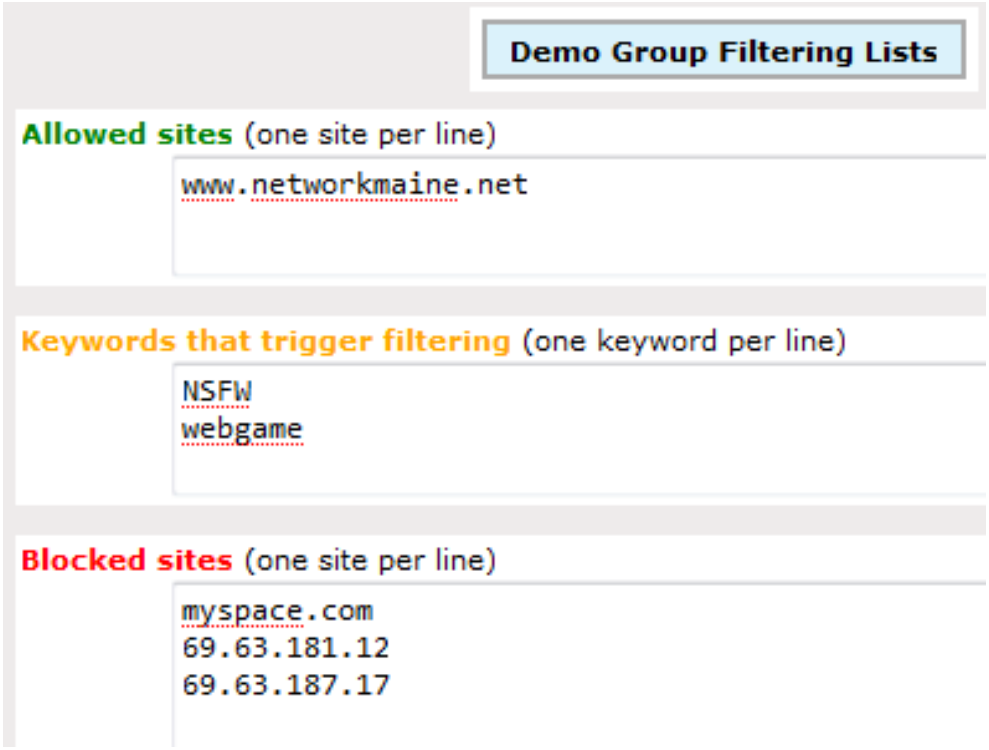
[1] Classless Inter-Domain Routing, see http://en.wikipedia.org/wiki/CIDR_notation

Group Filtering Lists

To work with filtering lists for a group, click on the "*Filtering Lists*" button.

Group filtering lists give you the ability to allow or block websites based on their URL, domain name, or IP address. Websites can also be blocked for the group by entering keywords in the "*Keywords that trigger filtering*" section. These keywords are searched for in **the entire page body**, not just the URL.

In the example below, if any web page has the word *NSFW* or *webgame* anywhere on the page, it will be blocked.



As noted in the "How MECguard Operates" section of this document, the *Allowed sites* are the first thing checked when a website is requested by a user. If a match is found, the page is allowed and no other checking is done. *Blocked sites* are checked next, followed by *Keywords that trigger filtering*.

To add a site or keyword to one of the lists, simply type it into the appropriate textbox. Each item must appear on its own line.

To remove an item from a list, select it and use the "*delete*" key or "*backspace*" key on your keyboard to delete it.

After adding or removing a site or keyword, click on the "*apply group settings*" button at the bottom of the page, and then go to the "*Options"* tab at the top of the page and click on the "*Restart firewall to apply changes*" button located at the bottom of the *Options* page.

Group MECguard Settings

To work with the MECguard settings for a group, click on the "*MECguard Settings*" button.

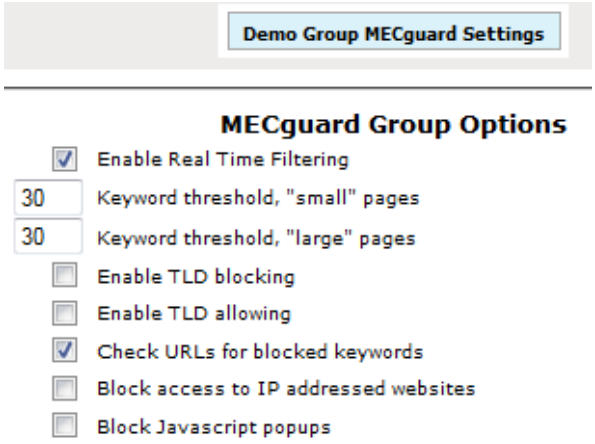
The Group MECguard Settings section is broken into two sub-sections: *MECguard Group Options* and *Distributed Filtering Categories*.

MECguard Group Options

The *MECguard Group Options* provides finer control over which filtering checks are enabled. Some of these options enable filters that are set up in other tabs/sections of the MECguard interface, such as RTF Keywords, Top Level Domain blocking, and URL keywords.

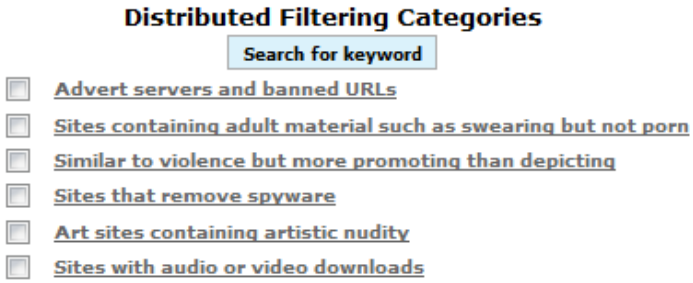
Additional options in this section include:

- *Keyword threshold, "small" pages*: The score a small (less than 4kB) page must reach before being blocked by the RTF engine
- *Keyword threshold, "large" pages*: The score a large (greater than 4kB) page must reach before being blocked by the RTF engine
- *Check URLs for blocked keywords:* Enables the *Keywords that trigger filtering* group list
- *Block access to IP addressed websites:* Forces users to use domain names rather than entering IP addresses



Distributed Filtering Categories

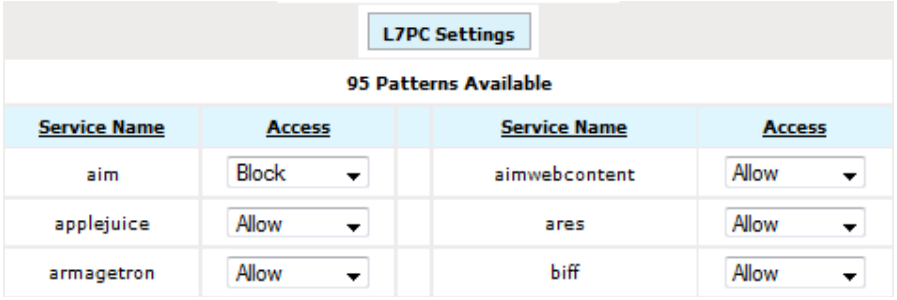
Distributed Filtering Categories has a list of predefined categories that you can choose to block. These categories can save time and energy through not having to manually create lists of certain commonly blocked types of sites. To see exactly which sites are blocked under a particular category, click on the category's title.


Distributed Filtering Categories
Search for keyword
Advert servers and banned URLs
Sites containing adult material such as swearing but not porn
Similar to violence but more promoting than depicting
Sites that remove spyware
Art sites containing artistic nudity
Sites with audio or video downloads

Group L7PC Settings

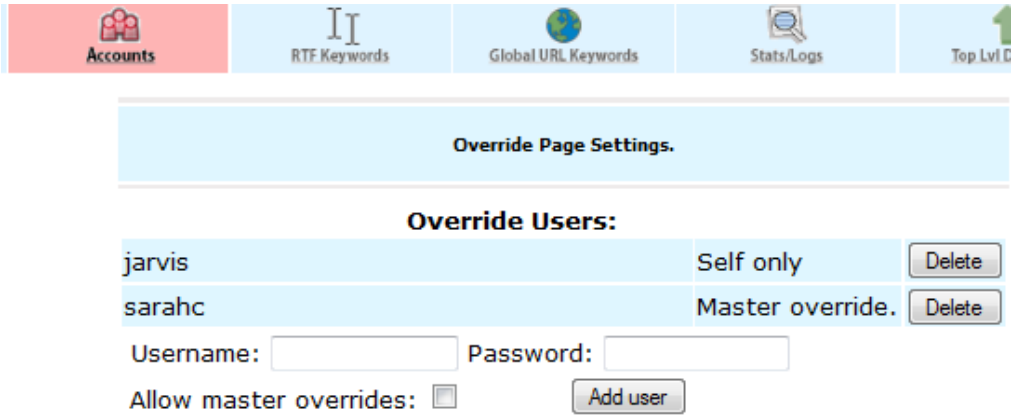
To work with L7PC settings for a group, click on the "*L7PC Settings*" button.

This section allows you to turn on the Layer-7 Packet Classifier (L7PC). The L7PC allows you to block traffic based on what application is generating it. For example, if you wish to stop students using AOL Instant Messenger, you can set the *aim* service in L7PC to *Block*, or *Block/Log*.



Accounts

Click on the "*Accounts*" tab to open the *Accounts* area.



This section simply gives you the ability to create override accounts. Override accounts can be *Self only*, meaning on a per-computer basis, or *Master override* accounts, meaning that the user can turn off the filter for everyone else in your network. Master override accounts should be used sparingly and guarded closely.

To add a user with override privileges, enter a username and password in the textboxes provided.

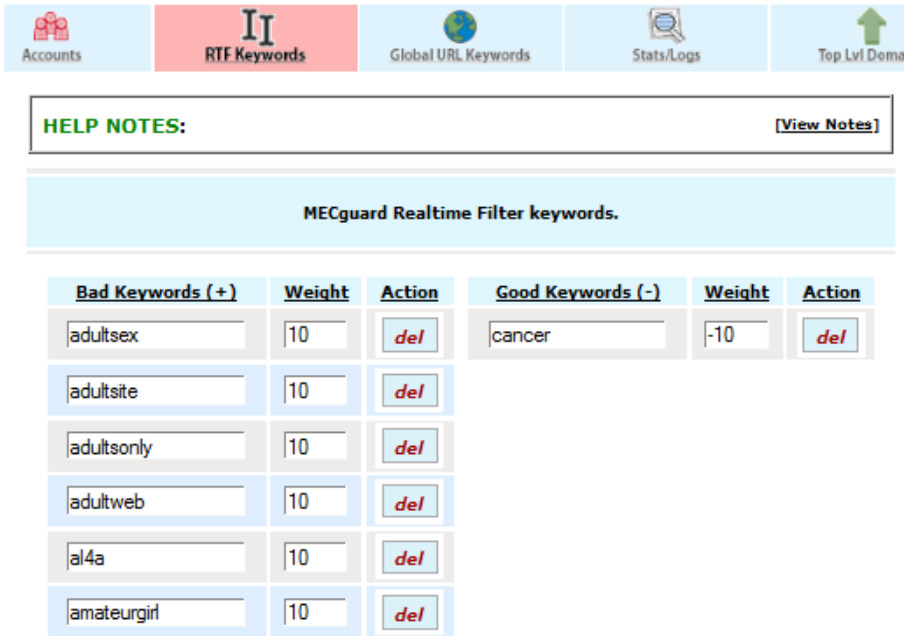
If the user should be given the ability to turn the filter off for all accounts, check the "*Allow master overrides*" checkbox.

Click on the "*Add user button*" to create the user account.

To delete an override user, click on the "*Delete*" button for the user that you wish to delete.

Real Time Filter Keywords

Click on the "*RTF Keywords*" tab to open the *RTF Keywords* area.



If enabled in the *Groups* > [groupname] > [groupname] *MECguard Settings* section, MECguard's RTF engine scans the text on web pages for both "good" or "bad" words. If it encounters any of the words from the keywords list, the "weight" associated with that keyword is added to the page's score. Web page scores start at neutral (0). If the total score of a web page reaches the threshold set in your MECguard groups, the block page will be displayed. Positively weighted keywords *increase* the page score, while negatively weighted words *decrease* the score. Keywords cannot have a space in them.

To add a keyword, scroll down to the bottom of the page. Type the new desired keyword into the "*Keyword*" textbox. To add this keyword to the *Bad Keywords* list, enter a positive number in the "*Weight*" textbox. To add this keyword to the *Good Keywords* list, enter a negative number in the "*Weight*" textbox. Click on the "*add*" button to complete the process.

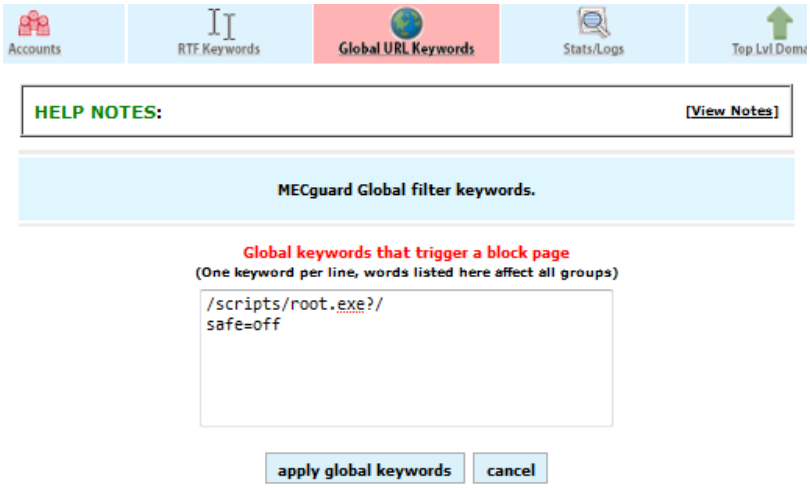
To change a keyword's weight, simply type a new number in the "*Weight*" textbox for that word.

To remove a keyword from the list, click on the "*del*" button in the *Action* column for that word.

After making any changes to this section, click on the "*apply rtf keyword list*" button at the bottom of the page.

Global URL Keywords

Click on the "*Global URL Keywords*" tab to open the Global URL Keywords area.



On this page, you can enter keywords that cause a web page to be blocked. Keywords listed in this area indicate words that should be searched for **within the URL** of a web page as opposed to words that should be searched for within the content of a page (keywords that are listed in the *RTF Keywords* area).

Global URL searches are performed for everyone behind the filter. They occur after the *Allowed sites* list contained in the *Groups* section is checked. Therefore, *Allowed sites* may permit a page to be displayed before the *Global URL Keywords* section is checked. For example, if facebook.com is in the *Allowed sites* list, then blocking it under *Global URL Keywords* would have no effect.

To include a global keyword, type it into the textbox and then click on the "*apply global keywords*" button.

Stats/Logs

Click on the "*Stats/Logs*" tab to open the *Stats/Logs* area in a new window. The Stats/Logs area gives you access to the following four sub-sections:

Click on any button to access that section.

Access Log

The access log shows the MECguard logs for every page accessed in a given timeframe, optionally searching for a keyword. Enter your desired parameters, and click on the "*display*" button to retrieve the appropriate records in the log file. To save the returned data in a CSV file, click on the "*export*" button.

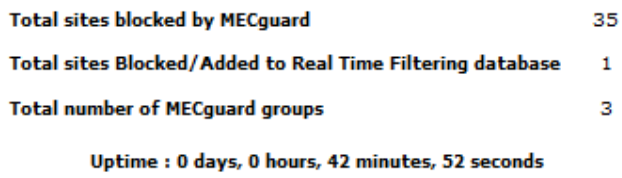
time*	username	remotehost	url	reason/category	status
03/18/2010 09:42:33	NONE	192.168.0.255	http://cotnet.diggstatic.com /js/loader /412/digg_facebook	NONE	Allowed
03/18/2010 09:42:46	NONE	192.168.0.255	http://l.yimg.com /a/combo?metro /mail/mail_0.0.20.css&metro /facebook/fa[..]	NONE	Allowed
03/26/2010 10:31:41	NONE	192.168.1.252	http://www.facebook.com/	CUST_BLOCK	**Blocked**
03/26/2010 10:34:45	NONE	192.168.1.252	http://www.facebook.com/	CUST_BLOCK	**Blocked**

Added by RTF

This section displays a list of any URLs that have automatically been added by Real Time Filtering.

Statistics

The statistics section shows counters for blocked sites since the last reboot:

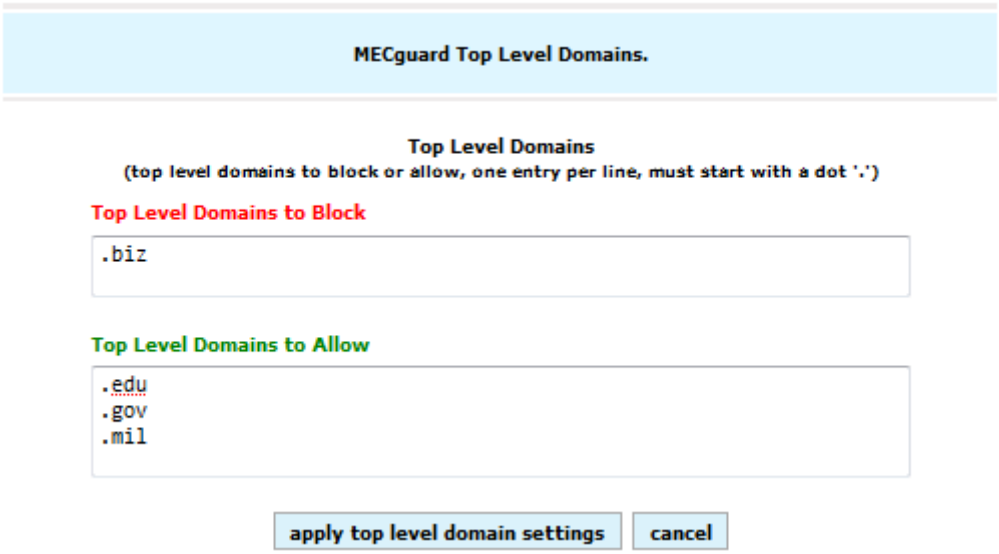

Total sites blocked by MECguard 35
Total sites Blocked/Added to Real Time Filtering database 1
Total number of MECguard groups 3
Uptime : 0 days, 0 hours, 42 minutes, 52 seconds

URL Hits

This section displays hit counters for the top URLs. Hits are not unique, and one host machine may generate several dozen hits in one page viewing due to the site having many page elements.

Top Level Domains

Click on the "*Top Lvl Domains*" tab to open the *Top Level Domains* area.


MECguard Top Level Domains.
Top Level Domains
(top level domains to block or allow, one entry per line, must start with a dot '.')
Top Level Domains to Block
.biz
Top Level Domains to Allow
.edu
.gov
.mil
apply top level domain settings
cancel

On this page, you may enter domains to allow and to block. The Top Level Domains are checked after the Global URL Keywords.

The block list isn't of much use because generally speaking no entire TLD can said to be bad or unnecessary; however the option is there for those with special requirements. As an example, ".biz" is provided in the picture above, but this type of blocking would be better done under a group's filtering list.

The allow list is more realistic, because certain TLDs like .edu or .gov should, in most cases, never contain explicit or harmful material.

To add an item to either list, enter it into the appropriate textbox and click on the "*apply top level domain settings*" button.

Options

Click on the "*Options*" tab to open the *Options* area.

This area allows you to configure miscellaneous options such as where unblock request emails will go and how long to keep log files. In addition, you can set up an internal white list in this area.

Firewall

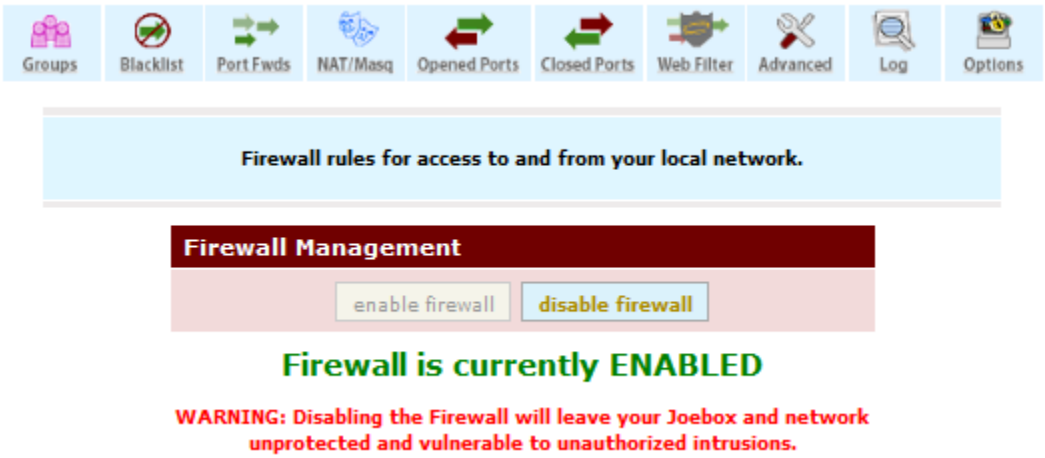
The SPI firewall built into the Joebox tracks the state of connections and provides detailed logging for all traffic.

Accessing the Firewall

Once you have entered your credentials and logged in (see the "Logging in to the Joebox" section of this document), you will see a navigation menu on the left-hand side of the window.

To access the firewall area, first click on the "*Network"* button in the navigation menu to display its subsections, and then click on the "*Firewall*" button. The firewall area can also be accessed using the link in the body of the *Network* page.

The *Firewall* home page provides access to various tools including *Groups*, *Blacklist*, *Port Forwards*, *NAT/Masq*, *Opened Ports*, *Closed Ports*, *Web Filter*, *Advanced*, *Log*, and *Options*.



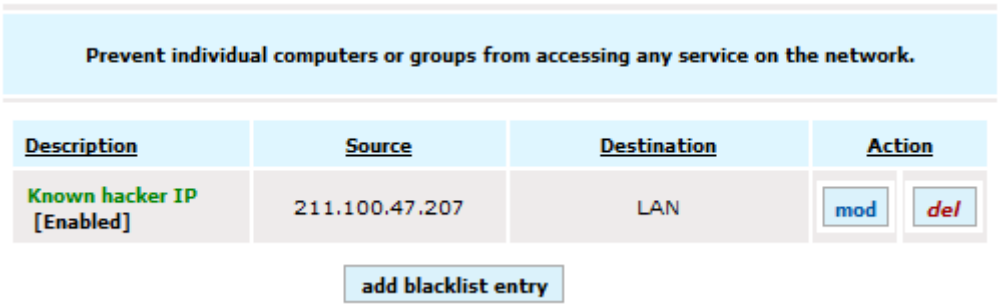
Groups

The *Groups* area is shared between the Firewall and MECguard content filter. Refer to the "Groups" section of this document under "MECguard Filter" for a detailed explanation.

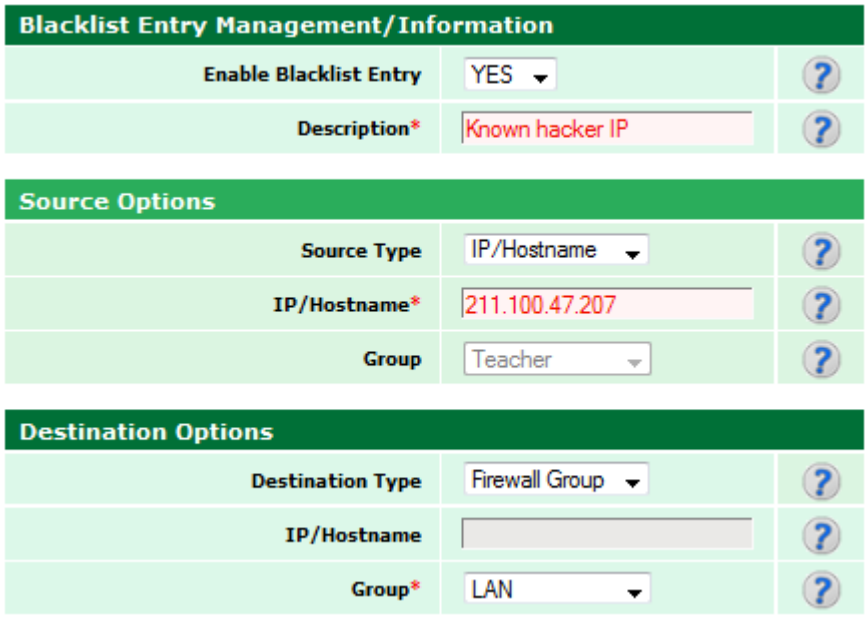
Blacklist

Click on the "*Blacklist*" tab to open the *Blacklist* area.

The blacklist prevents specific computers/devices **outside** your network from accessing your network, and prevents specific computers/devices **on** your network from accessing the Internet.



To create a new entry for the blacklist, click on the "*add blacklist entry*" button.



First, enable the entry and enter a description.

Then in the *Source Options* section, select whether you are blocking an *IP/Hostname* or a *Group* that you have made. If you are using an IP/Hostname, enter it into the "*IP/Hostname*" textbox. If you are using a group, select the desired group from the "*Group*" dropdown menu.

The *Destination* section follows the same format as *Source Options*, but refers to the where the packet is destined.

In the above example, traffic is being blocked traffic from one specific IP address that may be destined for any IP in the LAN group.

Finally, click on the "*add blacklist entry*" button to save your specifications and return to the blacklist.

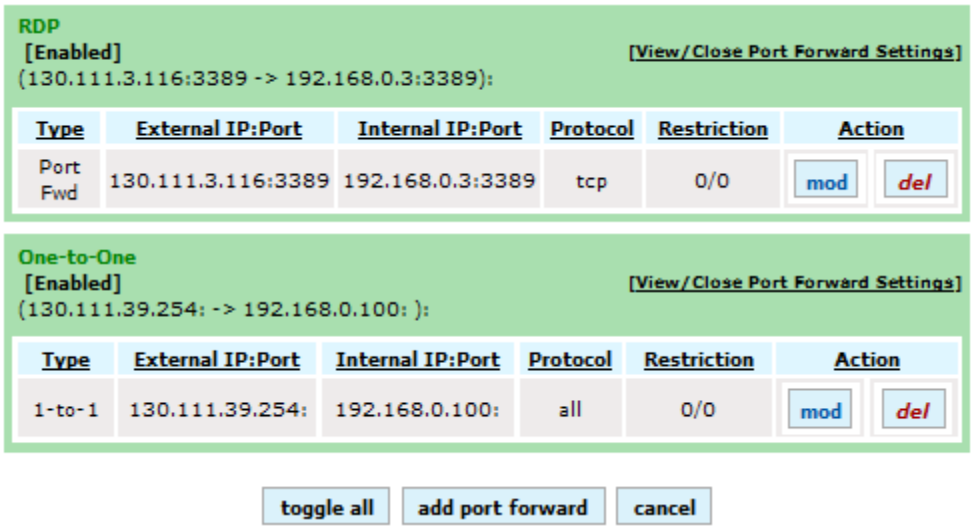
To modify an entry on the blacklist, click on the "*mod*" button in the entry's *Action* column. Make your changes, and then click on the "*modify blacklist entry*" button to save your specifications and return to the blacklist.

To delete an entry on the blacklist, click on the "*del*" button in the entry's *Action* column.

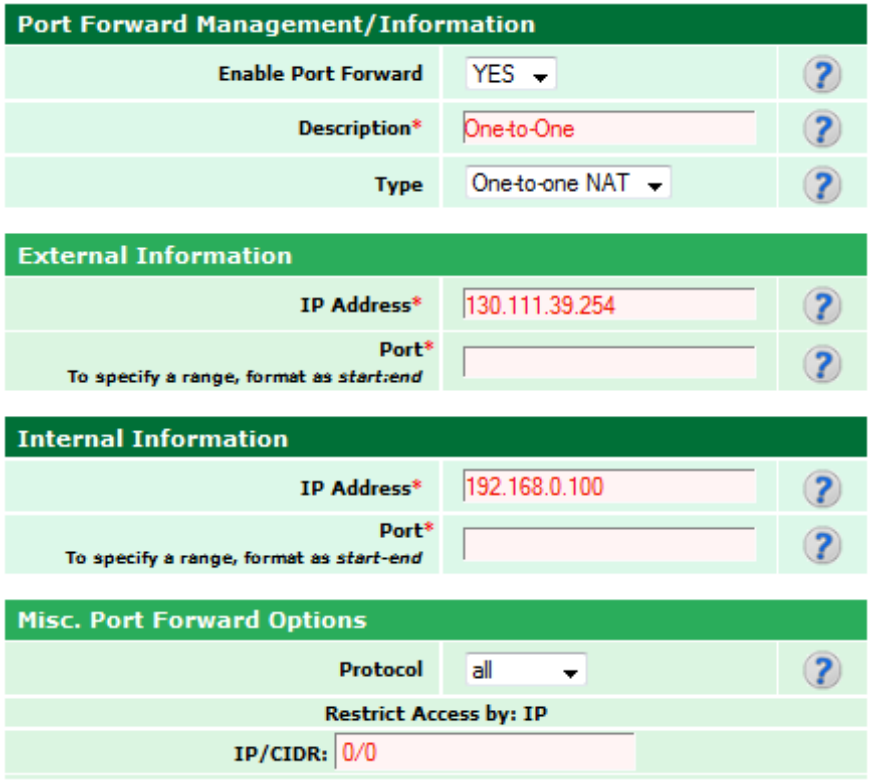
Port Forwards

Click on the "*Port Fwds*" tab to open the *Port Forwards* area.

This area allows you to run a server behind your firewall, and forward TCP/UDP ports to that server.



To add a new forward rule, click on the "*add port forward*" button located under the list of established forwards.



First, enable the entry and enter a description.

Next, you will select a rule type.There are two available rule types: *Port Forward* and *One-to-One NAT.* For *Port Forward*, you are able to set which external port and protocols are accepted to forward a user to another internal port in the internal local network. A *One-to-One NAT* allows you to send a user from an external IP address to an internal IP address in the internal local network.

Note that when setting up a one-to-one NAT entry, you must create a rule here **and** in the *NAT/Masq* area (see the next section of this document).

In the *External Information* and *Internal Information* sections, you will enter an IP address and port. *External IP* is the address/port the remote users connect to. The *Internal IP* is the IP behind the Joebox (on your LAN).

Use the *Restrict Access* section to restrict access by a certain IP address.

Finally, click on the "*add port forward*" button to save your specifications.

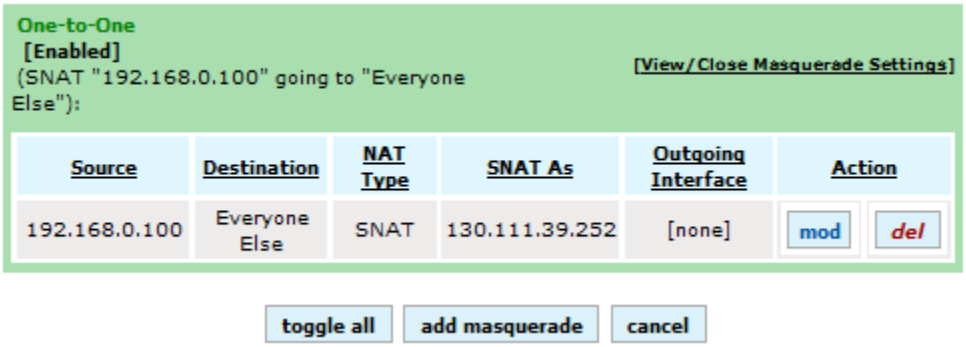
To modify a port forward, click on the "*mod*" button in the item's *Action* column. Make your changes, and then click on the "*modify port forward*" button to save your specifications and return to the list of forwards.

To delete a port forward, click on the "*del*" button in the item's *Action* column.

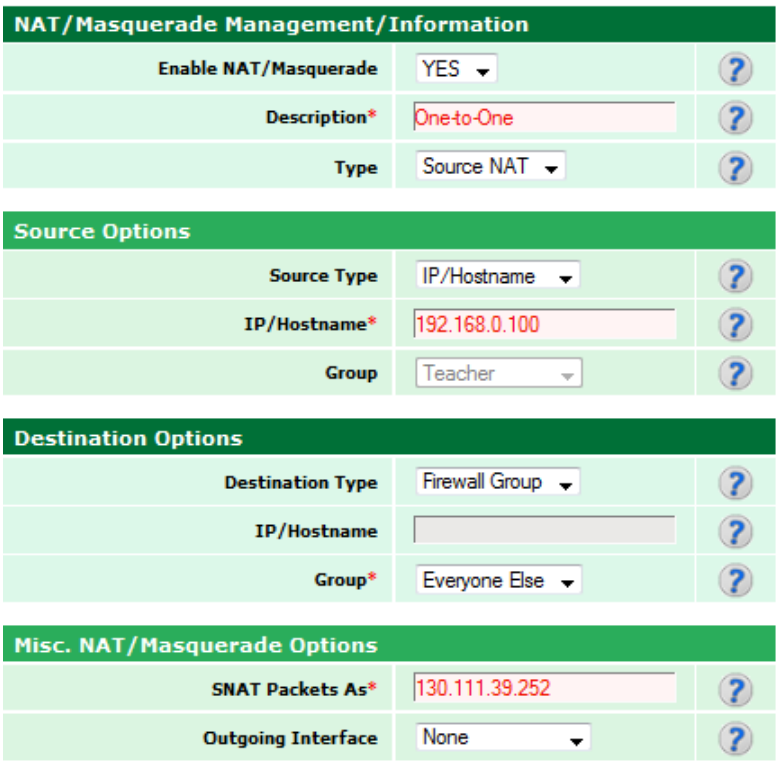
NAT/Masq

Click on the "*NAT/Masq*" tab to open the *NAT/Masq* area.

The NAT/Masq area allows you to enable multiple computers/devices on your internal network to access the Internet as the firewall single IP address.



To add a new rule, click on the "*add masquerade*" button located under the list of established NATs and masquerades.



First, enable the NAT/Masquerade and enter a description.

Next, you will set the type of NAT to use for the rule. The type can either be *Masquerade*, when your external connection is via a device that gets its IP address using DHCP, or *SNAT* (Source NAT), when your external connection has a fixed IP. For a one-to-one NAT entry, select *Source NAT* as the type.

In the *Source Options* and *Destination Options* sections, you will set the source and destination for the rule. In the "*Type*" dropdown menu, you can select either *IP/Hostname* or *Firewall Group*. If you are using an IP/Hostname, enter it into the "*IP/Hostname*" textbox. If you are using a group, select the desired group from the "*Group*" dropdown menu.

In the example above, the one-to-one NAT rule is given an internal IP on the LAN side, and the destination is set to the *Everyone Else* group.

In the *Misc. NAT/Masquerade Options* section, if setting up a SNAT, give it an external IP and set the outgoing interface to *None*. If setting up a masquerade, there is no need to change the settings in this section. Packets originating from machines behind your Joebox and sent out to other networks over the Internet will have their IP headers rewritten to appear as if they were coming from the Joebox interface or IP address you specify here.

Finally, click on the "*add NAT/masquerade*" button to save your specifications.

To modify a rule, click on the "*mod*" button in the item's *Action* column. Make your changes, and then click on the "*modify NAT/masquerade*" button to save your specifications and return to the list of rules.

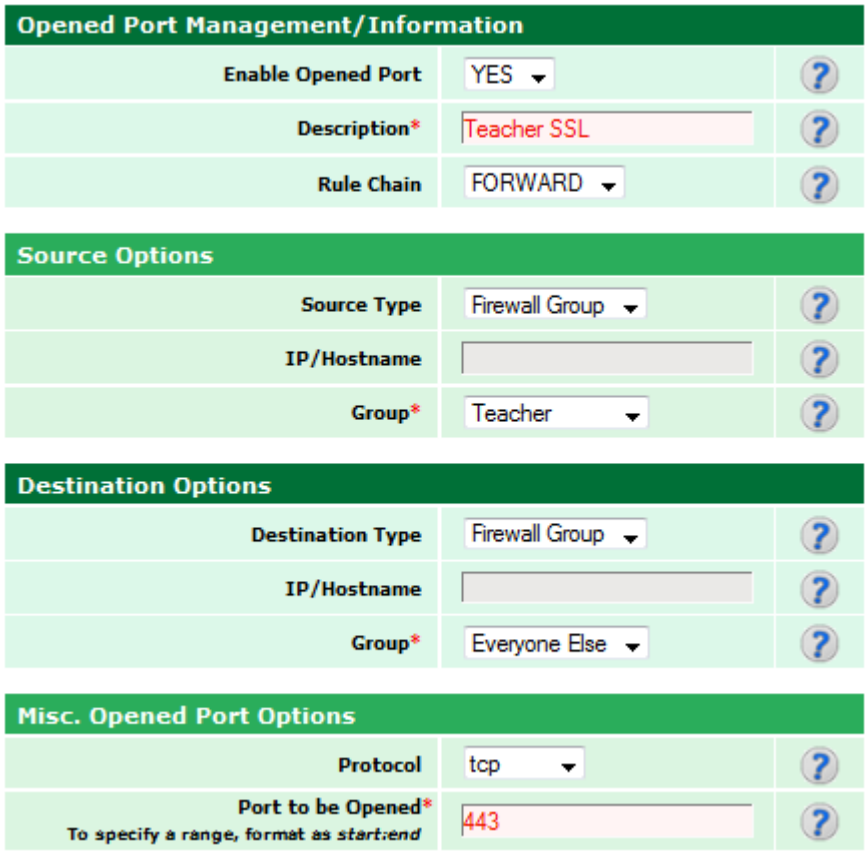
To delete a rule, click on the "*del*" button in the item's *Action* column.

Opened Ports

Click on the "*Opened Ports*" tab to open the *Opened Ports* area.

This feature allows you to open a port for forwarded or incoming traffic. It is only applicable if using the *MED* or *HIGH* firewall modes.

To open a port, click on the "*add opened port*" button.



First, enable the port and enter a description.

Then set the *Rule Chain*. There are three available chain types.

- *INPUT*: Allow/disallow packets going to the Joebox itself
- *FORWARD*: Allow/disallow packets going to clients behind the Joebox
- *OUTPUT*: Allow/disallow packets originating from the Joebox itself

The majority of the time you will want to select the *FORWARD* chain.

In the *Source Options* and *Destination Options* sections, you will set the source and destination. In the "*Type*" dropdown menu, you can select either *IP/Hostname* or *Firewall Group*. If you are using an IP/Hostname, enter it into the "*IP/Hostname*" textbox. If you are using a group, select the desired group from the "*Group*" dropdown menu.

In the *Misc. Opened Port Options* section, select the protocol and port to be opened. To open a range of ports, enter the start and end ports with a colon between them, e.g. 3390:4000.

Finally, click on the "*add opened port*" button to save your specifications.

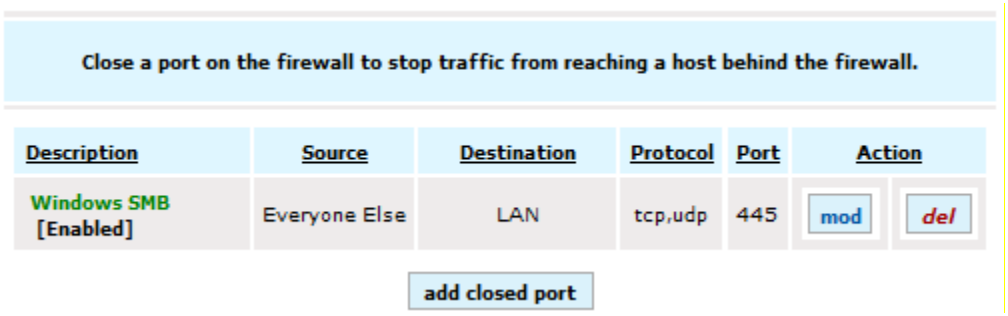
To modify an opened port, click on the "*mod*" button in the item's *Action* column. Make your changes, and then click on the "*modify opened port*" button to save your specifications and return to the list opened ports.

To remove an opened port from the list, click on the "*del*" button in the item's *Action* column.

Closed Ports

Click on the "*Closed Ports*" tab to open the *Closed Ports* area.

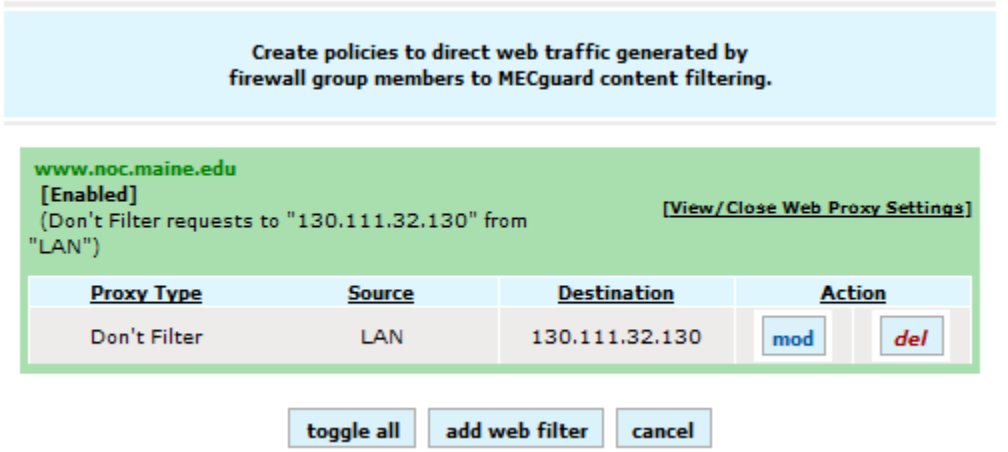
Adding a rule to *Closed Ports* area is the same series of steps as opening a port, except that you are choosing the range to block traffic on. Note that this option is only aplicable in the *LOW* firewall mode, since the *MED* and *HIGH* modes block non-open ports by default.



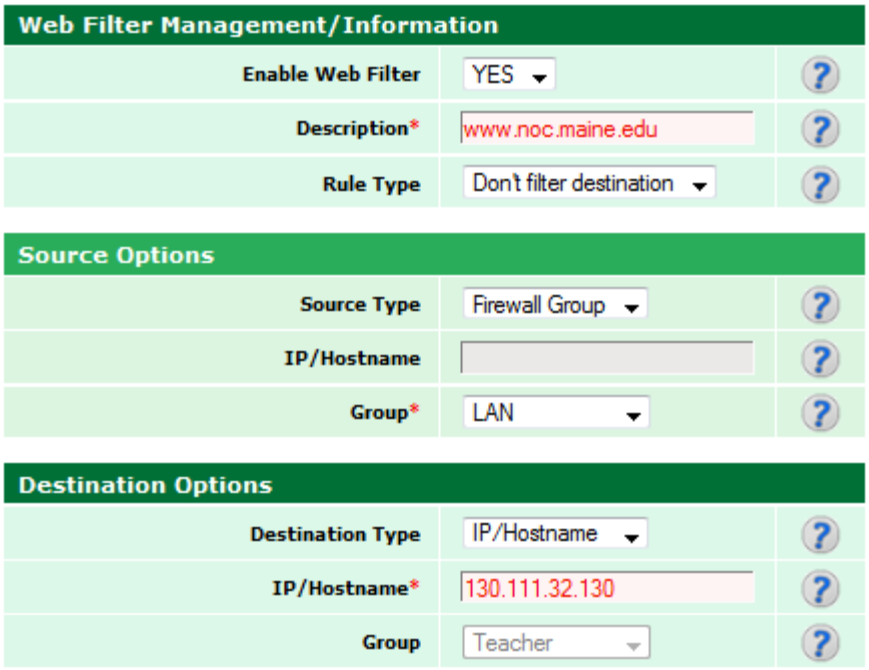
Web Filter

Click on the "*Web Filter*" tab to open the *Web Filter* area.

This area is used to create policies to direct groups of computers/devices from your LAN to be filtered and unfiltered via MECguard content filtering, and to define exceptions to these policies.



To add a web filter, click on the "*add web filter*" button.



First, enable the web filter and enter a description.

Next, you will select a rule type. There are three available types in the "*Rule Type"* dropdown menu.

- *Filter Source* - Run content filtering on the Web pages viewed by people in the selected group or IP address/website
- *Don't Filter Source* - Do not run content filtering on the group or IP address/website
- *Don't Filter Destination* - Do not run content filtering on the group or IP address/website

In the *Source Options* and *Destination Options* sections, you will set the source and destination for the rule. In the "*Type*" dropdown menu, you can select either *IP/Hostname* or *Firewall Group*. If you are using an IP/Hostname, enter it into the "*IP/Hostname*" textbox. If you are using a group, select the desired group from the "*Group*" dropdown menu.

Finally, click on the "*add web filter*" button to save your specifications.

To modify a web filter, click on the "*mod*" button in the item's *Action* column. Make your changes, and then click on the "*modify web filter*" button to save your specifications and return to the list of filters.

To delete a web filter, click on the "*del*" button in the item's *Action* column.

Advanced

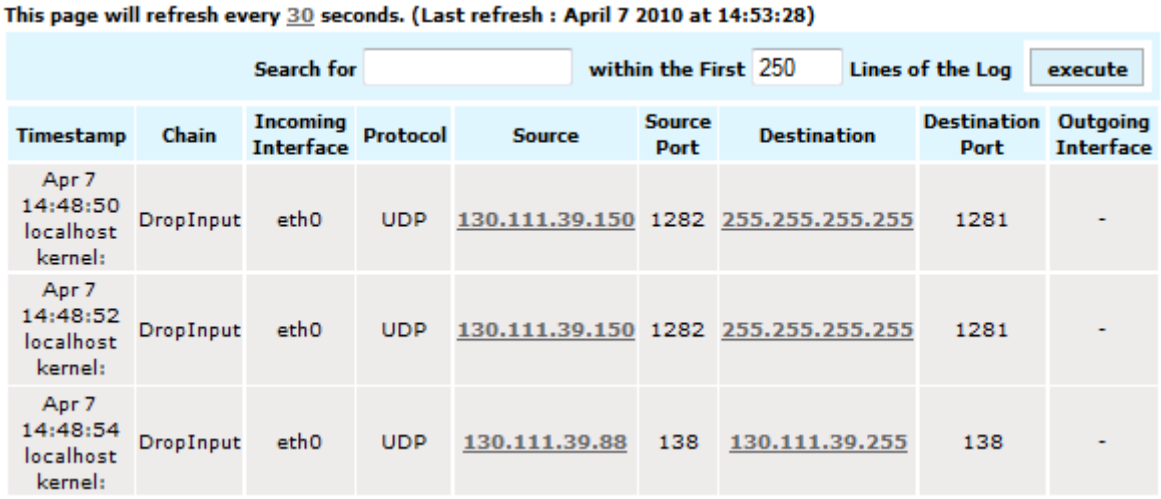
The advanced firewall editor is a powerful, complex way to create or manipulate custom firewall rules. There is no rule syntax checking. If you make a mistake, there is a possibility that you will lock yourself out of the machine. Use the advanced firewall editor only with great caution, and only when none of the pre-defined firewall solutions work for you. If you are not familiar with IP Tables, please call the Networkmaine support center before creating an advanced rule. For more information, consult the IP Tables documentation at http://www.netfilter.org.

Log

Click on the "*Log*" tab to open the *Log* area in a new window.

The *Log* area will display a *Connections Table* listing all of the active network connections that are going through your Joebox and their current statuses.

For information regarding the IP connection of the *Source* and *Destination* addresses, click on an underlined IP address.



This page will refresh every 30 seconds. (Last refresh : April 7 2010 at 14:53:28)

Search for [ ] within the First [250] Lines of the Log [execute]

Timestamp	Chain	Incoming Interface	Protocol	Source	Source Port	Destination	Destination Port	Outgoing Interface
Apr 7 14:48:50 localhost kernel:	DropInput	eth0	UDP	130.111.39.150	1282	255.255.255.255	1281	-
Apr 7 14:48:52 localhost kernel:	DropInput	eth0	UDP	130.111.39.150	1282	255.255.255.255	1281	-
Apr 7 14:48:54 localhost kernel:	DropInput	eth0	UDP	130.111.39.88	138	130.111.39.255	138	-

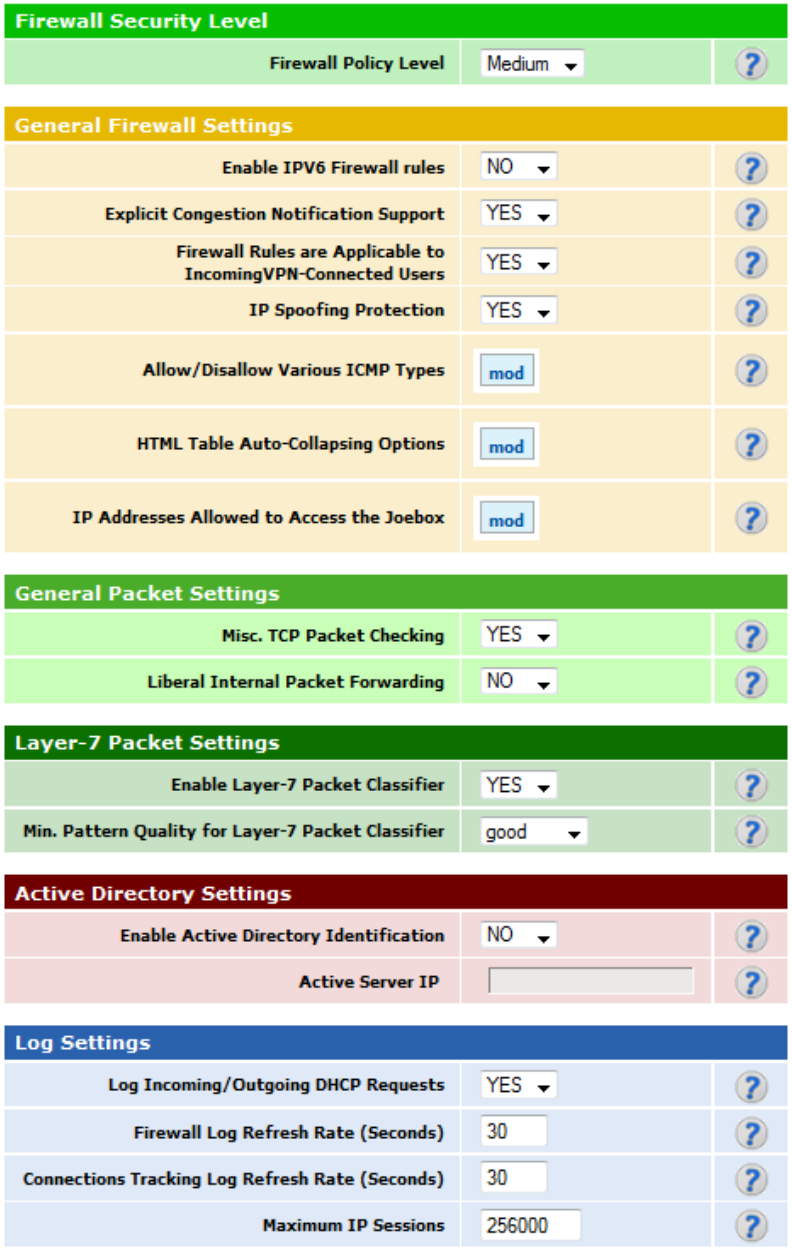
Options

Click on the "*Options*" tab to open the *Options* area.

In this section you will find miscellaneous settings that will affect the operation of your firewall. Explanations of some of the more obscure options are below.

Firewall Policy Level:

- *OFF*: Disable firewalls and all protection to the Joebox and the clients behind it – Not Recommended.
- *LOW*: Accept any connections to the Joebox. Accept and forward any connections from machines behind the Joebox – Not Recommended.
- *MEDIUM*: Deny any connections to the Joebox unless a firewall rule has been created to allow the connection. Accept and forward any connections from machines behind the Joebox.
- *HIGH*: Deny any connections to the Joebox unless a firewall rule has been created to allow the connection. Deny any connections from machines behind the Joebox unless a firewall rule has been created to allow the connection.



Explicit Congestion Notification Support:
Enable or disable ECN to warn devices of buffer-full conditions on routers.

Misc. TCP Packet Checking:
Enable or disable the filtering of TCP packets for potentially harmful attacks.

Liberal Internal Packet Forwarding:

- *YES*: Firewall will allow traffic on internal interfaces to be forwarded through it when the source and destination hosts are on the same physical network interface.
- *NO*: Firewall will allow traffic on internal interfaces with a destination of machines connected on another physical network interface.

Min. Pattern Quality for Layer-7 Packet Classifier:

- *Poor*: Someone posted this pattern to our mailing list without explanation. It looks dubious and is completely untested by us.
- *Marginal*: This might work, but it's not well understood. It may have only been tested with one client/server in a limited set of cases or not at all.
- *Ok*: This probably works, but maybe not in all cases. It has been tested only lightly.
- *Good*: We are pretty confident that this pattern works, but it could use more testing.
- *Great*: This pattern works as intended. It is well understood and well tested.